



SEQUENCE LISTING

<110> Hotten, Gertrud
Neidhardt, Helge
Bechtold, Rolf
Pohl, Jens

<120> GROWTH/DIFFERENTIATION FACTORS OF THE TGF-B FAMILY

<130> 100564-09021

<140> 09/901,556

<141> 1999-08-25

<150> 08/289,222

<151> 1994-08-12

<150> DE P 44 23 190.3

<151> 1994-07-01

<150> EPO 92102324.8

<151> 1992-02-12

<150> PCT/EP93/00350

<151> 1993-02-12

<160> 53

<170> PatentIn version 3.1

<210> 1

<211> 1207

<212> DNA

<213> Homo sapiens

<400> 1

accgggcggc	cctgaacca	agccaggaca	ccctcccca	acaaggcagg	ctacagccc	60
gactgtgacc	ccaaaaggac	agcttccc	aggcaaggca	ccccaaaag	caggatctgt	120
ccccagctcc	ttcctgctga	agaaggccag	ggagcccggg	ccccacgag	agccaagga	180
gccgtttcgc	ccacccccca	tcacaccca	cgagtacatg	ctctcgctgt	acaggacgct	240
gtccgatgct	gacagaaagg	gaggcaacag	cagcgtgaag	ttggaggctg	gcctggccaa	300
caccatcacc	agctttattg	acaaagggca	agatgaccga	ggctccgtgg	tcaggaagca	360
gaggtacgtg	tttgacatta	gtgccctgga	gaaggatggg	ctgctggggg	ccgagctgcg	420
gatcttgagg	aagaagccct	cggacacggc	caagccagcg	gccccgggag	gcgggcgggc	480
tgcccagctg	aagctgtcca	gctgccccag	cggccggcag	ccggcctcct	tgctggatgt	540
gcgctccgtg	ccaggcctgg	acggatctgg	ctgggaggtg	ttcgacatct	ggaagctctt	600
ccgaaacttt	aagaactcgg	cccagctgtg	cctggagctg	gaggcctggg	aacggggcag	660
ggccgtggac	ctccgtggcc	tgggcttcga	ccgcgccgcc	cggcaggtcc	acgagaaggc	720
cctgttcctg	gtgtttggcc	gcaccaagaa	acgggacctg	ttctttaatg	agattaaggc	780
ccgctctggc	caggacgata	agaccgtgta	tgagtacctg	ttcagccagc	ggcgaaaacg	840
gcgggccccca	ctggccactc	gccagggcaa	gcgaccagc	aagaacctta	aggctcgctg	900
cagtcggaag	gcactgcatg	tcaacttcaa	ggacatgggc	tgggacgact	ggatcatcgc	960
acccttgag	tacgaggctt	tccactgcga	ggggctgtgc	gagttcccat	tgcgctccca	1020
cctggagccc	acgaatcatg	cagtcatcca	gaccctgatg	aactccatgg	accccgagtc	1080
cacaccaccc	acctgctgtg	tgcccacgcg	gctgagtccc	atcagcatcc	tcttcattga	1140
ctctgccaac	aacgtggtgt	ataagcagta	tgaggacatg	gtcgtggagt	cgtgtggctg	1200
caggtag						1207

<210> 2

<211> 2272

<212> DNA

<213> Homo sapiens

<400> 2

caaggagcca	tgccagctgg	acacacactt	cttcaggggc	ctctggcagc	caggacagag	60
ttgagaccac	agctgttgag	acctgagcc	ctgagtctgt	attgctcaag	aagggccttc	120

cccagcaatg acctcctcat tgcttctggc ctttctcctc ctggctccaa ccacagtggc	180
cactcccaga gctggcggtc agtgtccagc atgtggggggg cccaccttgg aactggagag	240
ccagcgggag ctgcttcttg atctggccaa gagaagcatc ttggacaagc tgcacctcac	300
ccagcgccca aactgaacc gccctgtgtc cagagctgct ttgaggactg cactgcagca	360
cctccacggg gtccacagg gggcacttct agaggacaac agggaacagg aatgtgaaat	420
catcagcttt gctgagacag gcctctccac catcaaccag actcgtcttg attttcactt	480
ctcctctgat agaactgctg gtgacagggg ggtccagcag gccagtctca tgttctttgt	540
gcagctccct tccaatacca cttggacctt gaaagtgaga gtccttgtgc tgggtccaca	600
taataccaac ctcaccttgg ctactcagta cctgctggag gtggatgcca gtggctggca	660
tcaactcccc ctagggcctg aagctcaagc tgcttgcagc caggggcacc tgaccctgga	720
gctggtactt gaaggccagg tagcccagag ctcagtcatc ctgggtggag ctgcccatag	780
gccttttgtg gcagcccggg tgagagttgg gggcaaacac cagattcacc gacgaggcat	840
cgactgccaa ggaggggtcca ggatgtgctg tcgacaagag ttttttgtgg acttccgtga	900
gattggctgg cacgactgga tcatccagcc tgagggctac gccatgaact tctgcatagg	960
gcagtgccca ctacacatag caggcatgcc tggatttgc gcctcctttc aactgcagt	1020
gctcaatctt ctcaaggcca acacagctgc aggcaccact ggaggggggt catgctgtgt	1080
accacgggcc cggcgcccc tgtctctgct ctattatgac agggacagca acattgtcaa	1140
gactgacata cctgacatgg tagtagaggc ctgtgggtgc agttagtcta tgtgtggtat	1200
gggcagccca aggttgcatt ggaaaacacg cccctacaga agtgcacttc cttgagagga	1260
gggaatgacc tcattctctg tccagaatgt ggactccctc ttcttgagca tcttatggaa	1320
attacccac ctttgacttg aagaaacctt catctaaagc aagtcactgt gccatcttcc	1380
tgaccactac cctctttcct agggcatagt ccatcccgct agtccatccc gctagcccca	1440
ctccagggac tcagacccat ctccaacct gagcaatgcc atctggttcc caggcaaaga	1500
cacccttagc tcaccttta tagaccccat aaccactat gccttctgt ctttctact	1560
caatgggtccc cactccaaga tgagttgaca caacccttc cccaatttt tgtggatctc	1620
cagagaggcc cttcttttga ttcaccaaag tttagatcac tgctgccc aaatagaggct	1680
tacctacccc cctctttgtt gtgagccct gtccttctta gttgtccagg tgaactacta	1740
aagctctctt tgcatacctt catccatttt ttgtccttct ctgcctttct ctatgccctt	1800
aaggggtgac ttgcctgagc tctatcacct gagctccct gccctctggc ttctgtctga	1860
ggtcagggca tttcttatcc ctgttccctc tctgtctagg tgtcatggtt ctgtgtaact	1920
gtggctattc tgtgtcccta cactacctgg ctacccctt ccatggcccc agctctgcct	1980
acattctgat tttttttttt tttttttttt tgaaaagtta aaaattcctt aattttttat	2040

tcctggtacc actaccacaa ttacagggc aatatacctg atgtaatgaa aagaaaaaga 2100
aaaagacaaa gctacaacag ataaaagacc tcaggaatgt acatctaatt gacactacat 2160
tgcattaatc aatagctgca ctttttgcaa actgtggcta tgacagtcct gaacaagaag 2220
ggtttcctgt ttaagctgca gtaacttttc tgactatgga tcatcgttcc tt 2272

<210> 3

<211> 401

<212> PRT

<213> Homo sapiens

<400> 3

Pro Gly Gly Pro Glu Pro Lys Pro Gly His Pro Pro Gln Thr Arg Gln
1 5 10 15
Ala Thr Ala Arg Thr Val Thr Pro Lys Gly Gln Leu Pro Gly Gly Lys
20 25 30
Ala Pro Pro Lys Ala Gly Ser Val Pro Ser Ser Phe Leu Leu Lys Lys
35 40 45
Ala Arg Glu Pro Gly Pro Pro Arg Glu Pro Lys Glu Pro Phe Arg Pro
50 55 60
Pro Pro Ile Thr Pro His Glu Tyr Met Leu Ser Leu Tyr Arg Thr Leu
65 70 75 80
Ser Asp Ala Asp Arg Lys Gly Gly Asn Ser Ser Val Lys Leu Glu Ala
85 90 95
Gly Leu Ala Asn Thr Ile Thr Ser Phe Ile Asp Lys Gly Gln Asp Asp
100 105 110
Arg Gly Pro Val Val Arg Lys Gln Arg Tyr Val Phe Asp Ile Ser Ala
115 120 125
Leu Glu Lys Asp Gly Leu Leu Gly Ala Glu Leu Arg Ile Leu Arg Lys
130 135 140
Lys Pro Ser Asp Thr Ala Lys Pro Ala Ala Pro Gly Gly Gly Arg Ala
145 150 155 160
Ala Gln Leu Lys Leu Ser Ser Cys Pro Ser Gly Arg Gln Pro Ala Ser
165 170 175

Leu Leu Asp Val Arg Ser Val Pro Gly Leu Asp Gly Ser Gly Trp Glu
180 185 190

Val Phe Asp Ile Trp Lys Leu Phe Arg Asn Phe Lys Asn Ser Ala Gln
195 200 205

Leu Cys Leu Glu Leu Glu Ala Trp Glu Arg Gly Arg Ala Val Asp Leu
210 215 220

Arg Gly Leu Gly Phe Asp Arg Ala Ala Arg Gln Val His Glu Lys Ala
225 230 235 240

Leu Phe Leu Val Phe Gly Arg Thr Lys Lys Arg Asp Leu Phe Phe Asn
245 250 255

Glu Ile Lys Ala Arg Ser Gly Gln Asp Asp Lys Thr Val Tyr Glu Tyr
260 265 270

Leu Phe Ser Gln Arg Arg Lys Arg Arg Ala Pro Leu Ala Thr Arg Gln
275 280 285

Gly Lys Arg Pro Ser Lys Asn Leu Lys Ala Arg Cys Ser Arg Lys Ala
290 295 300

Leu His Val Asn Phe Lys Asp Met Gly Trp Asp Asp Trp Ile Ile Ala
305 310 315 320

Pro Leu Glu Tyr Glu Ala Phe His Cys Glu Gly Leu Cys Glu Phe Pro
325 330 335

Leu Arg Ser His Leu Glu Pro Thr Asn His Ala Val Ile Gln Thr Leu
340 345 350

Met Asn Ser Met Asp Pro Glu Ser Thr Pro Pro Thr Cys Cys Val Pro
355 360 365

Thr Arg Leu Ser Pro Ile Ser Ile Leu Phe Ile Asp Ser Ala Asn Asn
370 375 380

Val Val Tyr Lys Gln Tyr Glu Asp Met Val Val Glu Ser Cys Gly Cys
385 390 395 400

Arg

<210> 4

<211> 352

<212> PRT

<213> Homo sapiens

<400> 4

Met Thr Ser Ser Leu Leu Leu Ala Phe Leu Leu Leu Ala Pro Thr Thr
1 5 10 15

Val Ala Thr Pro Arg Ala Gly Gly Gln Cys Pro Ala Cys Gly Gly Pro
20 25 30

Thr Leu Glu Leu Glu Ser Gln Arg Glu Leu Leu Leu Asp Leu Ala Lys
35 40 45

Arg Ser Ile Leu Asp Lys Leu His Leu Thr Gln Arg Pro Thr Leu Asn
50 55 60

Arg Pro Val Ser Arg Ala Ala Leu Arg Thr Ala Leu Gln His Leu His
65 70 75 80

Gly Val Pro Gln Gly Ala Leu Leu Glu Asp Asn Arg Glu Gln Glu Cys
85 90 95

Glu Ile Ile Ser Phe Ala Glu Thr Gly Leu Ser Thr Ile Asn Gln Thr
100 105 110

Arg Leu Asp Phe His Phe Ser Ser Asp Arg Thr Ala Gly Asp Arg Glu
115 120 125

Val Gln Gln Ala Ser Leu Met Phe Phe Val Gln Leu Pro Ser Asn Thr
130 135 140

Thr Trp Thr Leu Lys Val Arg Val Leu Val Leu Gly Pro His Asn Thr
145 150 155 160

Asn Leu Thr Leu Ala Thr Gln Tyr Leu Leu Glu Val Asp Ala Ser Gly
165 170 175

Trp His Gln Leu Pro Leu Gly Pro Glu Ala Gln Ala Ala Cys Ser Gln
180 185 190

Gly His Leu Thr Leu Glu Leu Val Leu Glu Gly Gln Val Ala Gln Ser
195 200 205

Ser Val Ile Leu Gly Gly Ala Ala His Arg Pro Phe Val Ala Ala Arg
210 215 220

Val Arg Val Gly Gly Lys His Gln Ile His Arg Arg Gly Ile Asp Cys
 225 230 235 240

Gln Gly Gly Ser Arg Met Cys Cys Arg Gln Glu Phe Phe Val Asp Phe
 245 250 255

Arg Glu Ile Gly Trp His Asp Trp Ile Ile Gln Pro Glu Gly Tyr Ala
 260 265 270

Met Asn Phe Cys Ile Gly Gln Cys Pro Leu His Ile Ala Gly Met Pro
 275 280 285

Gly Ile Ala Ala Ser Phe His Thr Ala Val Leu Asn Leu Leu Lys Ala
 290 295 300

Asn Thr Ala Ala Gly Thr Thr Gly Gly Gly Ser Cys Cys Val Pro Thr
 305 310 315 320

Ala Arg Arg Pro Leu Ser Leu Leu Tyr Tyr Asp Arg Asp Ser Asn Ile
 325 330 335

Val Lys Thr Asp Ile Pro Asp Met Val Val Glu Ala Cys Gly Cys Ser
 340 345 350

<210> 5
 <211> 265
 <212> DNA
 <213> Homo sapiens

<400> 5
 catccagcct gagggctacg ccatgaactt ctgcataggg cagtgccac tacacatagc 60
 aggcattgcct ggtattgctg cctcctttca cactgcagtg ctcaatcttc tcaaggccaa 120
 cacagctgca ggcaccactg gagggggctc atgctgtgta cccacggccc ggcgccccct 180
 gtctctgctc tattatgaca gggacagcaa cattgtcaag actgacatac ctgacatggt 240
 agtagaggcc tgtgggtgca gttag 265

<210> 6
 <211> 139
 <212> DNA
 <213> Homo sapiens

<400> 6
catcgcaccc cttgagtacg aggctttcca ctgcgagggg ctgtgagagt tcccattgcg 60
ctccacactg gagcccacga atcatgcagt catccagacc ctgatgaact ccatggaccc 120
cgagtccaca ccacccacc 139

<210> 7
<211> 27
<212> DNA
<213> Homo sapiens

<400> 7
atgaactcca tggaccccga gtccaca 27

<210> 8
<211> 30
<212> DNA
<213> Homo sapiens

<400> 8
cttctcaagg ccaacacagc tgcaggcacc 30

<210> 9
<211> 9
<212> PRT
<213> Homo sapiens

<400> 9
Met Asn Ser Met Asp Pro Glu Ser Thr
1 5

<210> 10
<211> 10
<212> PRT
<213> Homo sapiens

<400> 10

Leu Leu Lys Ala Asn Thr Ala Ala Gly Thr
1 5 10

<210> 11

<211> 44

<212> DNA

<213> artificial

<220>

<223> oligodT (16 residues) linked to adapter primer

<400> 11

agaattcgca tgccatgggc gacgaagctt tttttttttt tttt

44

<210> 12

<211> 24

<212> DNA

<213> artificial

<220>

<223> adaptor primer

<400> 12

agaattcgca tgccatgggc gacg

24

<210> 13

<211> 24

<212> DNA

<213> Homo sapiens

<400> 13

ggctacgccca tgaacttctg cata

24

<210> 14

<211> 24

<212> DNA

<213> Homo sapiens

<400> 14
acatagcagg catgcctggt attg

24

<210> 15

<211> 23

<212> DNA

<213> Homo sapiens

<400> 15
cttgagtacg aggctttcca ctg

23

<210> 16

<211> 24

<212> DNA

<213> artificial

<220>

<223> nested adaptor primer

<400> 16
attcgcatgc catggtcgac gaag

24

<210> 17

<211> 23

<212> DNA

<213> Homo sapiens

<400> 17
ggagcccacg aatcatgcag tca

23

<210> 18

<211> 23

<212> DNA

<213> Homo sapiens

<400> 18

acagcaggtg ggtggtgtgg act

23

<210> 19

<211> 20

<212> DNA

<213> Homo sapiens

<400> 19

ccagcagccc atccttctcc

20

<210> 20

<211> 24

<212> DNA

<213> Homo sapiens

<400> 20

tccagggcac taatgtcaaa cacg

24

<210> 21

<211> 24

<212> DNA

<213> Homo sapiens

<400> 21

actaatgtca aacacgtacc tctg

24

<210> 22

<211> 102

<212> PRT

<213> Homo sapiens

<400> 22

Cys Ser Arg Lys Ala Leu His Val Asn Phe Lys Asp Met Gly Trp Asp
1 5 10 15

Asp Trp Ile Ile Ala Pro Leu Glu Tyr Glu Ala Phe His Cys Glu Gly
20 25 30

Leu Cys Glu Phe Pro Leu Arg Ser His Leu Glu Pro Thr Asn His Ala
35 40 45

Val Ile Gln Thr Leu Met Asn Ser Met Asp Pro Glu Ser Thr Pro Pro
50 55 60

Thr Cys Cys Val Pro Thr Arg Leu Ser Pro Ile Ser Ile Leu Phe Ile
65 70 75 80

Asp Ser Ala Asn Asn Val Val Tyr Lys Gln Tyr Glu Asp Met Val Val
85 90 95

Glu Ser Cys Gly Cys Arg
100

<210> 23

<211> 101

<212> PRT

<213> Homo sapiens

<400> 23

Cys Lys Arg His Pro Leu Tyr Val Asp Phe Ser Asp Val Gly Trp Asn
1 5 10 15

Asp Trp Ile Val Ala Pro Pro Gly Tyr His Ala Phe Tyr Cys His Gly
20 25 30

Glu Cys Pro Phe Pro Leu Ala Asp His Leu Asn Ser Thr Asn His Ala
35 40 45

Ile Val Gln Thr Leu Val Asn Ser Val Asn Ser Lys Ile Pro Lys Ala
50 55 60

Cys Cys Val Pro Thr Glu Leu Ser Ala Ile Ser Met Leu Tyr Leu Asp
65 70 75 80

Glu Asn Glu Lys Val Val Leu Lys Asn Tyr Gln Asp Met Val Val Glu
85 90 95

Gly Cys Gly Cys Arg
100

<210> 24

<211> 101

<212> PRT

<213> Homo sapiens

<400> 24

Cys Arg Arg His Ser Leu Tyr Val Asp Phe Ser Asp Val Gly Trp Asn
1 5 10 15

Asp Trp Ile Val Ala Pro Pro Gly Tyr Gln Ala Phe Tyr Cys His Gly
20 25 30

Asp Cys Pro Phe Pro Leu Ala Asp His Leu Asn Ser Thr Asn His Ala
35 40 45

Ile Val Gln Thr Leu Val Asn Ser Val Asn Ser Ser Ile Pro Lys Ala
50 55 60

Cys Cys Val Pro Thr Glu Leu Ser Ala Ile Ser Met Leu Tyr Leu Asp
65 70 75 80

Glu Tyr Asp Lys Val Val Leu Lys Asn Tyr Gln Glu Met Val Val Glu
85 90 95

Gly Cys Gly Cys Arg
100

<210> 25

<211> 102

<212> PRT

<213> Homo sapiens

<400> 25

Cys Lys Lys His Glu Leu Tyr Val Ser Phe Arg Asp Leu Gly Trp Gln
1 5 10 15

Asp Trp Ile Ile Ala Pro Glu Gly Tyr Ala Ala Phe Tyr Cys Asp Gly
20 25 30

Glu Cys Ser Phe Pro Leu Asn Ala His Met Asn Ala Thr Asn His Ala
35 40 45

Ile Val Gln Thr Leu Val His Leu Met Phe Pro Asp His Val Pro Lys
50 55 60

Pro Cys Cys Ala Pro Thr Lys Leu Asn Ala Ile Ser Val Leu Tyr Phe
65 70 75 80

Asp Asp Ser Ser Asn Val Ile Leu Lys Lys Tyr Arg Asn Met Val Val
85 90 95

Arg Ser Cys Gly Cys His
100

<210> 26

<211> 102

<212> PRT

<213> Homo sapiens

<400> 26

Cys Arg Lys His Glu Leu Tyr Val Ser Phe Gln Asp Leu Gly Trp Gln
1 5 10 15

Asp Trp Ile Ile Ala Pro Lys Gly Tyr Ala Ala Asn Tyr Cys Asp Gly
20 25 30

Glu Cys Ser Phe Pro Leu Asn Ala His Met Asn Ala Thr Asn His Ala
35 40 45

Ile Val Gln Thr Leu Val His Leu Met Asn Pro Glu Tyr Val Pro Lys
50 55 60

Pro Cys Cys Ala Pro Thr Lys Leu Asn Ala Ile Ser Val Leu Tyr Phe
65 70 75 80

Asp Asp Asn Ser Asn Val Ile Leu Lys Lys Tyr Arg Asn Met Val Val
85 90 95

Arg Ala Cys Gly Cys His
100

<210> 27

<211> 102

<212> PRT

<213> Homo sapiens

<400> 27

Cys Lys Lys His Glu Leu Tyr Val Ser Phe Arg Asp Leu Gly Trp Gln
1 5 10 15

Asp Trp Ile Ile Ala Pro Glu Gly Tyr Ala Ala Tyr Tyr Cys Glu Gly
20 25 30

Glu Cys Ala Phe Pro Leu Asn Ser Tyr Met Asn Ala Thr Asn His Ala
35 40 45

Ile Val Gln Thr Leu Val His Phe Ile Asn Pro Glu Thr Val Pro Lys
50 55 60

Pro Cys Cys Ala Pro Thr Gln Leu Asn Ala Ile Ser Val Leu Tyr Phe
65 70 75 80

Asp Asp Ser Ser Asn Val Ile Leu Lys Lys Tyr Arg Asn Met Val Val
85 90 95

Arg Ala Cys Gly Cys His
100

<210> 28

<211> 106

<212> PRT

<213> Homo sapiens

<400> 28

Cys Cys Arg Gln Glu Phe Phe Val Asp Phe Arg Glu Ile Gly Trp His
1 5 10 15

Asp Trp Ile Ile Gln Pro Glu Gly Tyr Ala Met Asn Phe Cys Ile Gly
20 25 30

Gln Cys Pro Leu His Ile Ala Gly Met Pro Gly Ile Ala Ala Ser Phe
35 40 45

His Thr Ala Val Leu Asn Leu Leu Lys Ala Asn Thr Ala Ala Gly Thr
50 55 60

Thr Gly Gly Gly Ser Cys Cys Val Pro Thr Ala Arg Arg Pro Leu Ser
65 70 75 80

Leu Leu Tyr Tyr Asp Arg Asp Ser Asn Ile Val Lys Thr Asp Ile Pro
85 90 95

Asp Met Val Val Glu Ala Cys Gly Cys Ser
100 105

<210> 29

<211> 106

<212> PRT

<213> Homo sapiens

<400> 29

Cys Cys Lys Lys Gln Phe Phe Val Ser Phe Lys Asp Ile Gly Trp Asn
1 5 10 15

Asp Trp Ile Ile Ala Pro Ser Gly Tyr His Ala Asn Tyr Cys Glu Gly
20 25 30

Glu Cys Pro Ser His Ile Ala Gly Thr Ser Gly Ser Ser Leu Ser Phe
35 40 45

His Ser Thr Val Ile Asn His Tyr Arg Met Arg Gly His Ser Pro Phe
50 55 60

Ala Asn Leu Lys Ser Cys Cys Val Pro Thr Lys Leu Arg Pro Met Ser
65 70 75 80

Met Leu Tyr Tyr Asp Asp Gly Gln Asn Ile Ile Lys Lys Asp Ile Gln
85 90 95

Asn Met Ile Val Glu Glu Cys Gly Cys Ser
100 105

<210> 30

<211> 105

<212> PRT

<213> Homo sapiens

<400> 30

Cys Cys Arg Gln Gln Phe Phe Ile Asp Phe Arg Leu Ile Gly Trp Asn
1 5 10 15

Asp Trp Ile Ile Ala Pro Thr Gly Tyr Tyr Gly Asn Tyr Cys Glu Gly
20 25 30

Ser Cys Pro Ala Tyr Leu Ala Gly Val Pro Gly Ser Ala Ser Ser Phe
35 40 45

His Thr Ala Val Val Asn Gln Tyr Arg Met Arg Gly Leu Asn Pro Gly
50 55 60

Thr Val Asn Ser Cys Cys Ile Pro Thr Lys Leu Ser Thr Met Ser Met
65 70 75 80

Leu Tyr Phe Asp Asp Glu Tyr Asn Ile Val Lys Arg Asp Val Pro Asn
85 90 95

Met Ile Val Glu Glu Cys Gly Cys Ala
100 105

<210> 31

<211> 105

<212> PRT

<213> Homo sapiens

<400> 31

Cys His Arg Val Ala Leu Asn Ile Ser Phe Gln Glu Leu Gly Trp Glu
1 5 10 15

Arg Trp Ile Val Tyr Pro Pro Ser Phe Ile Phe His Tyr Cys His Gly
20 25 30

Gly Cys Gly Leu His Ile Pro Pro Asn Leu Ser Leu Pro Val Pro Gly
35 40 45

Ala Pro Pro Thr Pro Ala Gln Pro Tyr Ser Leu Leu Pro Gly Ala Gln
50 55 60

Pro Cys Cys Ala Ala Leu Pro Gly Thr Met Arg Pro Leu His Val Arg
65 70 75 80

Thr Thr Ser Asp Gly Gly Tyr Ser Phe Lys Tyr Glu Thr Val Pro Asn
85 90 95

Leu Leu Thr Gln His Cys Ala Cys Ile
100 105

<210> 32

<211> 36
<212> DNA
<213> artificial
<220>
<223> OD PCR amplification primer

<400> 32
atgaattccc atggacctgg gctggmakga mtggat 36

<210> 33
<211> 22
<212> DNA
<213> Homo sapiens

<400> 33
acgtgggggtg gaatgactgg at 22

<210> 34
<211> 22
<212> DNA
<213> Homo sapiens

<400> 34
atattggctg gagtgaatgg at 22

<210> 35
<211> 22
<212> DNA
<213> Homo sapiens

<400> 35
atgtgggctg gaatgactgg at 22

<210> 36
<211> 22

<212> DNA

<213> Homo sapiens

<400> 36

acctgggctg gcaggactgg at

22

<210> 37

<211> 22

<212> DNA

<213> Homo sapiens

<400> 37

aggacctcgg ctggaagtgg at

22

<210> 38

<211> 22

<212> DNA

<213> Homo sapiens

<400> 38

gggatctagg gtggaaatgg at

22

<210> 39

<211> 22

<212> DNA

<213> Homo sapiens

<400> 39

aggatctggg ctggaagtgg gt

22

<210> 40

<211> 22

<212> DNA

<213> Homo sapiens

<400> 40

agctgggctg ggaacggtgg at

22

<210> 41

<211> 22

<212> DNA

<213> Homo sapiens

<400> 41

acatcggctg gaatgactgg at

22

<210> 42

<211> 22

<212> DNA

<213> Homo sapiens

<400> 42

tcatcggctg gaacgactgg at

22

<210> 43

<211> 29

<212> DNA

<213> Homo sapiens

<400> 43

atgaattcga gctgcgtsgg srcacagca

29

<210> 44

<211> 21

<212> DNA

<213> artificial

<220>

<223> OID PCR amplification primer

<400> 44

gagttctgtc gggacacagc a

21

<210> 45

<211> 21

<212> DNA

<213> Homo sapiens

<400> 45

catcttttct ggtacacagc a

21

<210> 46

<211> 21

<212> DNA

<213> Homo sapiens

<400> 46

cagttcagtg ggcacacaac a

21

<210> 47

<211> 21

<212> DNA

<213> Homo sapiens

<400> 47

gagctgcgtg ggcgcacagc a

21

<210> 48

<211> 21

<212> DNA

<213> Homo sapiens

<400> 48

cagcgcctgc ggcacgcagc a

21

<210> 49

<211> 21

<212> DNA

<213> Homo sapiens

<400> 49
taaatcttgg gacacgcagc a 21

<210> 50

<211> 21

<212> DNA

<213> Homo sapiens

<400> 50
caggtcctgg ggcacgcagc a 21

<210> 51

<211> 21

<212> DNA

<213> Homo sapiens

<400> 51
ccctgggaga gcagcacagc a 21

<210> 52

<211> 21

<212> DNA

<213> Homo sapiens

<400> 52
cagcttggtg ggcacacagc a 21

<210> 53

<211> 21

<212> DNA

<213> Homo sapiens

<400> 53
cagcttggtg ggaatgcagc a 21